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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,030	10/14/2003	Yoshinori Muramatsu	17119	4843

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EXAMINER

KINKEAD, ARNOLD M

ART UNIT PAPER NUMBER

2817

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,030

Applicant(s)

MURAMATSU, YOSHINORI

Examiner

Arnold M. Kinkead

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Duncan et al(US 7,019,598).

The reference by Duncan et al discloses a Differential VCO with a resonant LC circuit comprising inductors(4509), a pair of switched(severally...) first capacitors(4528), a variable capacitor(4515, NOS type varactors with control 4533) and a negative resistance cell(NMOS N1,N2). The switches(4527) are coupled to the capacitors(4528)(closest to the cell) and controlled by (b1); while another switch(controlled by bn) is shown coupled to the other electrode of the switched first capacitors. The differential structure has two output nodes, inherent, from which an output (Fout) may

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be derived due to the balanced structure. Please refer to abstract figure and background, for PLL implementation of VCO(local oscillator) as well as fig. 28a and col. 38, line 27+ for spiral inductor/substrate description. Please note that the VCO is coupled between Vdd (high) and ground(ref.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al(' 598) in view of Lucent Tech(JP 11-330852 cited by applicant).

The reference by Duncan et al discloses a Differential VCO with a resonant LC circuit comprising inductors(4509), a pair of switched(severally...) first capacitors(4528), a variable capacitor(4515, NOS type varactors with control 4533) and a negative resistance cell(NMOS N1,N2). The switches(4527) are coupled to the capacitors(4528)(closest to the cell) and controlled by (b1); while another switch(controlled by bn) is shown coupled to the other electrode of the switched first capacitors. The differential structure has two output nodes, inherent, from which an output (Fout) may be derived due to the balanced structure. Please refer to abstract figure and background, for PLL implementation of

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VCO(local oscillator) as well as fig. 28a and col. 38, line 27+ for spiral inductor/substrate description. Please note that the VCO is coupled between Vdd (high) and ground(ref.)

The reference by Duncan does not show two transconductance cells, i.e., a PMOS pair in addition to the NMOS pair described above. This is conventional for these differential structures, and the Lucent reference is relied upon to show how this helps increase the overall transconductance, see abstract and figure with P-cell (32) and N-cell 38. A better frequency response over a wide band is obtained.

In light of the above it would have been obvious to one of ordinary skill in the art to have recognized the benefits of having an additional transconductance cell as noted by Lucent, to be incorporated in the Duncan et al oscillator. This would improve the overall gain and allow for wider frequency tuning.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold M. Kinkead whose telephone number is 571-272-1763. The examiner can normally be reached on Mon-Fri, 8:30 am -5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Arnold M Kinkead

Primary Examiner

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Arnold Kinkead

May 27, 2006